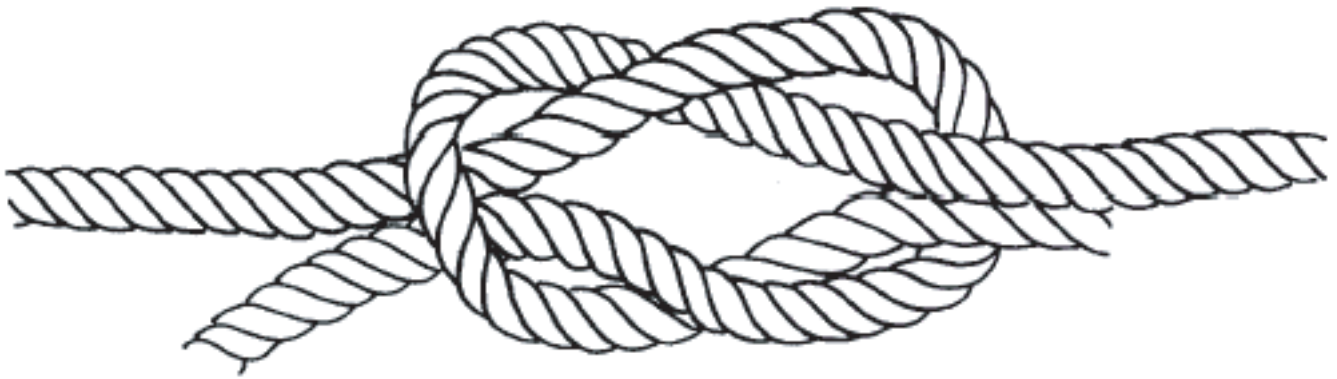


Basic Knots And Ropework

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Frayed Knot Arts

www.frayedknotarts.com



Knots and ropework for
Practical and Shipboard uses
with some Fancywork Ideas

EVERYONE can benefit from learning a bit about knots and ropework... Around the house, on a camping trip, bringing large items home on the top of a car, and (most especially) if you're a boater or around boats a lot. The knowledge will serve you well for your entire life and you are NEVER "too old" to learn!

On the following pages are a VERY few of the most basic types of knots and hitches, but they'll do to start you out. If you should pick up the "Knot Me!" bug from this pamphlet, my apologies! Here are some books that will feed your "K.A.S." (Knot Acquisition Syndrome)!

ABOK (The Ashley Book Of Knots), Clifford Ashley
Doubleday books, 1944 (ISBN 0-385-04025-3)

"The Old Testament Of Knotting"

EFKR (The Encyclopedia Of Knots And Fancy Ropework), Raoul Graumont and John Hensel
Cornell Maritime Press, 1943 (ISBN-13: 9780870330216)

"The New Testament Of Knotting"

These two books cover ALL the knots, braids, sennits, turk's-heads and fancywork you could ever want to know about, but they DO assume the reader is well-grounded in ropework!

More user-friendly are these:

The Marlinspike Sailor, Hervy Garret Smith (ISBN-13: 9780070592186) and
The Arts Of The Sailor, Hervy Garret Smith (ISBN-13: 9780486264400)

Two of the absolutely best-written books on seamanship, basic and fancy knotting. Joys to own and read!

The Ultimate Encyclopedia of Knots And Ropework, Geoffrey Budworth
(ISBN: 0760736383) Barnes & Noble 2003. *A superb reference book*

Some websites you can explore online:

www.igkt.org The website of the International Guild Of Knot-tyers.

www.frayedknotarts.com My own website. Click on the "TUTORIALS" button!

www.realknots.com Edouard Prins of the Netherlands' page... in English!!!

www.animatedknots.com Alan Grogono's amazingly good pages of animation for knotting!

Of course, you can simply go to "Google" and type in "knots", "knot-tying" or the like and see what comes up... I guarantee you'll find a plethora of other sites to delight, astound and confound you.

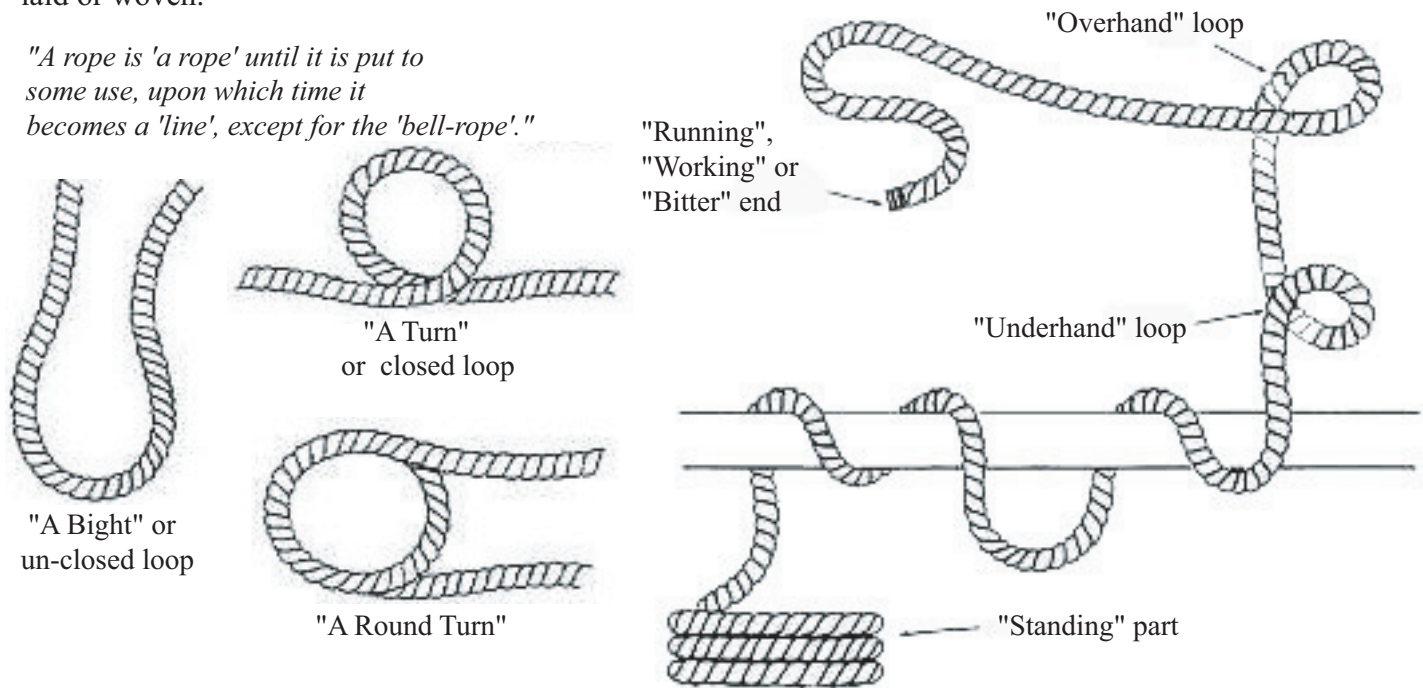
I am ALWAYS available by email for questions or help at **frayedknotarts.com**.

One thing I always ask: Consider, before teaching ANY knots to children, that almost any knot mis-applied in play may turn deadly! Take into account the maturity of the youngster being instructed before teaching something the "Constrictor Knot" and NEVER teach the "Hangman's Noose" to ANYONE.

TERMS FOR THIS TUTORIAL

First, we should define the parts of the rope for our purposes. These terms apply to ALL types of rope, laid or woven.

"A rope is 'a rope' until it is put to some use, upon which time it becomes a 'line', except for the 'bell-rope'."



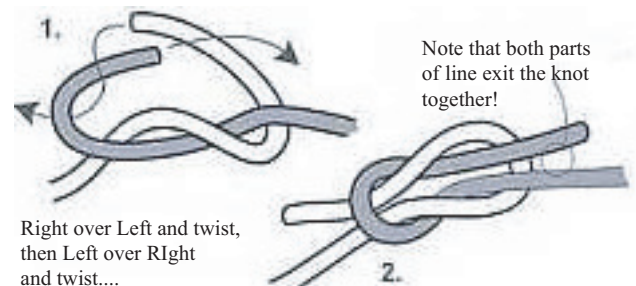
All the knots, hitches and bends in the following pages can be equally well-tied in either the three-strand "laid" rope used for the illustrations or in modern synthetic lines in double-braid. I will occasionally remember to do so, but let me take this opportunity to mention that anytime a hitch or bend is finished off with one or two half-hitches, I **STRONGLY** recommend that you add one or two additional half-hitches when using synthetic line: In it's nature, it has **MUCH** less surface friction and, consequently, does have a tendency to work loose much more than cotton or manilla lines. Remember, when in doubt, **ALWAYS** err on the side of safety!

The SQUARE or REEF Knot

One of the most commonly seen knots is the "Square" or "Reef" knot. While it is perfect for it's intended use in "reefing-down" a sail, it should **NEVER** be used to join two lines together as it has a most distressing tendency to "upset", or come undone!

The method is shown here... If doing a bow or a package where the strain is **STATIC**, it's an excellent knot. If you use it anywhere else, you're just asking for trouble!

"Right over Left, and Left over Right, makes thee a Square Knot, pretty and tight!"



To release the knot, simply pull **UP** on either end and the line will "upset" and come apart quite easily, which is why it is so useful for reefing sails and so disappointing as a reliable bend in daily use.

You **CAN** use this to join two lines if you whip (tie together) the ends to the standing parts, but - why bother? There are **MUCH** better bends to use!

For someone not reefing a sail, this knot is best left to the Boy Scouts.

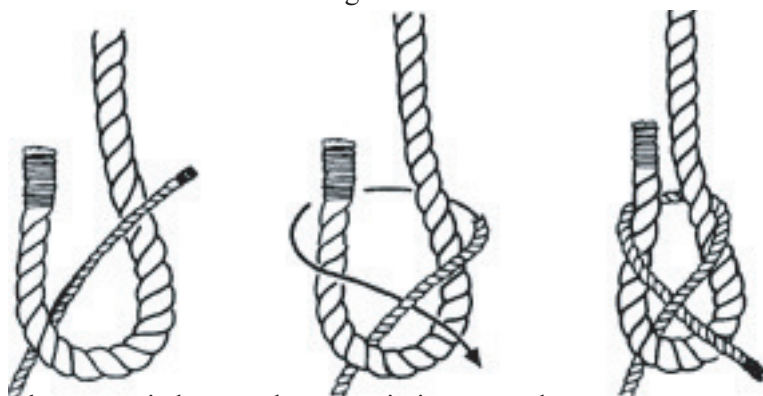
The Sheet Bend

Quite simply the best way to attach two lines of the same or dissimilar sizes together.

As shown, form a bight with the **LARGER** of the two lines (if they're the same size it makes no difference which you use) and bring the working part of the **SMALLER** line up **THROUGH** the bight, around the back and then **ACROSS** and **UNDER** itself in the front. **DON'T** go back down thru the bight or the bend will fail every time!

Fair the lines tightly and you've got your bend. The knot will not "spill" under strain and tends to stay tied even when a strain is removed.

For added security on this knot, take the working end around the back again and under itself in the front: This forms a **DOUBLED** sheet bend.



The name comes from using this bend to attach the earring (corner) lines of a sail to the hauling lines (sheets).

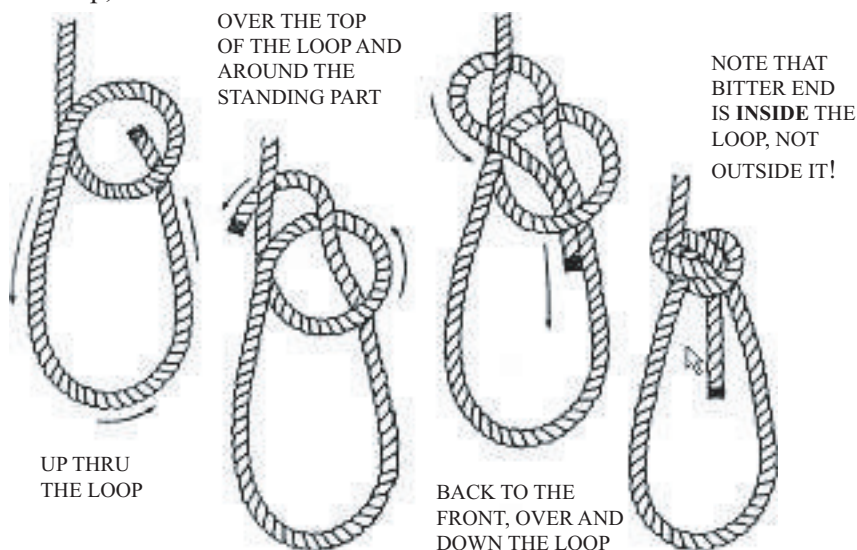
THE BOWLINE KNOT

"The Rabbit Comes Out Of His Hole, Goes Around The Tree And Goes Back Down His Hole."

Probably the most recognizable knot after the "square" knot, this is a massively useful way to form a loop in the end of a line. 99% of the time it will not slip, it will not "jam" on itself, it is quick and easy to tie and it will **STAY** tied until you take it out! It is one of the strongest knots, achieving 92% ratings and is used for everything from tying up a ship to a lifeline loop,

To make it, form an **OVERHAND** loop (so that it looks like a figure "6") and then allow enough line to make a loop of the size desired;

Take the **WORKING** end and pass it up and **THROUGH** the loop as shown, then **OVER** the **TOP** of the loop, around the back of the standing part and **OVER** the **TOP** of the loop again, finally tucking it **DOWN** thru the loop.



STEEL MARLINSPIKE



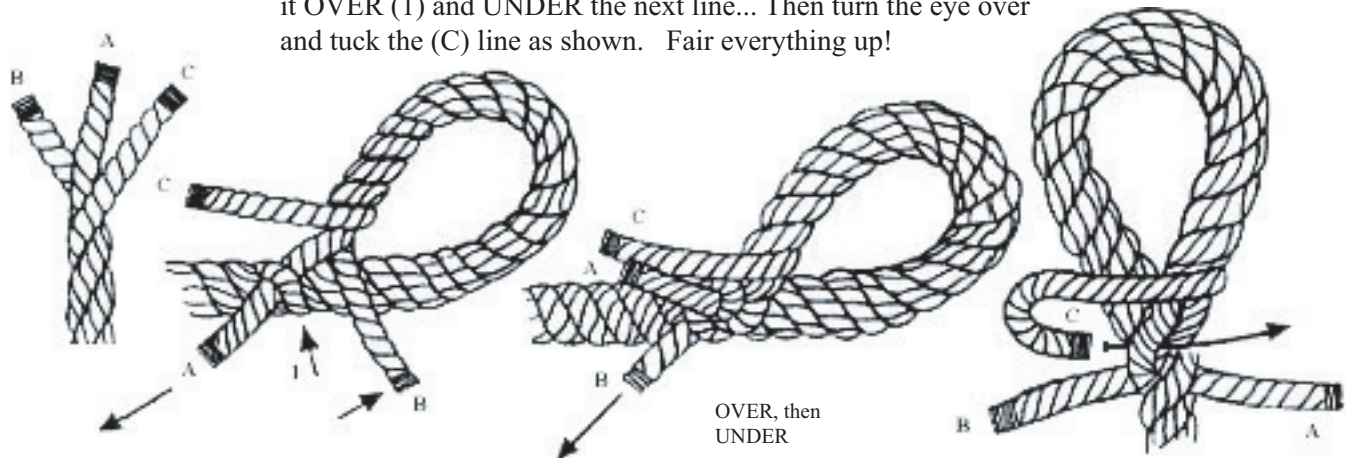
WOODEN FID

(see page 5)

THE EYESPLICE

I could dedicate an entire class to making the eyesplice correctly, and I STILL wouldn't feel confident that most people had gotten the idea, but for those of you who are interested, here's a brief precis:

Form a loop, then tuck the center line (A) thru the first turn as shown, then take (B) and tuck it OVER (1) and UNDER the next line... Then turn the eye over and tuck the (C) line as shown. Fair everything up!



Once you have made the first tucks, continue tucking in the same order (A B C) until you have made THREE tucks total for manilla line or FIVE tucks total for synthetic line. You can make a few more if you wish but three for manilla or cotton and five for synthetics should hold well. To open the line for tucking the ends, use a WOODEN fid (a conical piece of wood turned to a point) for the purpose. A metal marlinspike can cut and pierce the rope fibres where the wooden fid will move them out of the way. You will find that if you clamp the eye and then twist the standing part TOWARD you a bit, it will help open the strands for the fid.

Whenever possible, have someone experienced check your eyesplice over!

THE CLOVE AND CONSTRICTOR HITCHES

The Clove Hitch will hold on just about ANY ROUNDED surface as long as the crossing point is acutally ON the curved surface. It really doesn't like to hold on flat or rectangular surfaces, although it will tolerate a hexagonal or octagonal surface. Take your working end around the pole as shown and then up and over itself, around the pole again and then under the crossing line as shown

This hitch is useful to make up to a piling, secure a pole for pulling or bundling a number of sticks.

"Over Below And Under Aloft".



To convert a Clove Hitch to a Constrictor Hitch, take the working end (A) and, going in the same direction, tuck it OVER and then UNDER the lower loop (B) then pull on both ends to tighten it up.

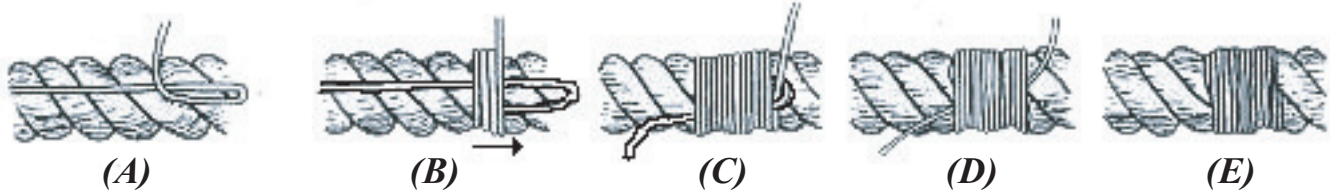
Be warned: When pulled tight, the only way to undo the hitch is to cut it off !

Use the constrictor with EXTREME caution and NEVER make it up on a body part!

WHIPPING A ROPE END To prevent the end of a rope from un-laying, or "fagging out".

For this you need a strong, small twine (waxed twine is best, nylon twine works quite well and cotton is OK, but you may want to "double up" the line if it's light-duty) and two small, stout sticks. (Chopsticks work!)

Take your rope and about a yard of twine, lay the twine up along the rope and form a loop as shown in (A) below, leaving about a two inch loop. Next, clamp the crossing point with your thumbnail, then take the long end of the twine and make about ten passes around the rope back toward the end as shown in (B) and (C). Take the working end of the twine and put it THRU the remaining loop as shown in (C), then pull on the loop line until the loop disappears under the turns, as in (D). Wrap the two ends of the twine around the sticks (unless you have hands as callused as mine!) and pull on both ends to secure the whipping, then trim the whipping ends off neat to the turns. (E)



For added security (in case the end whipping is knocked off for some reason) do a second whipping about three inches down the rope. This works on any "laid" rope, both fibre and synthetic, but on synthetic the whip can slip a bit, so a third whipping is, while not "necessary", a good insurance move. Double-braid rope should always be "backspliced" by an expert.

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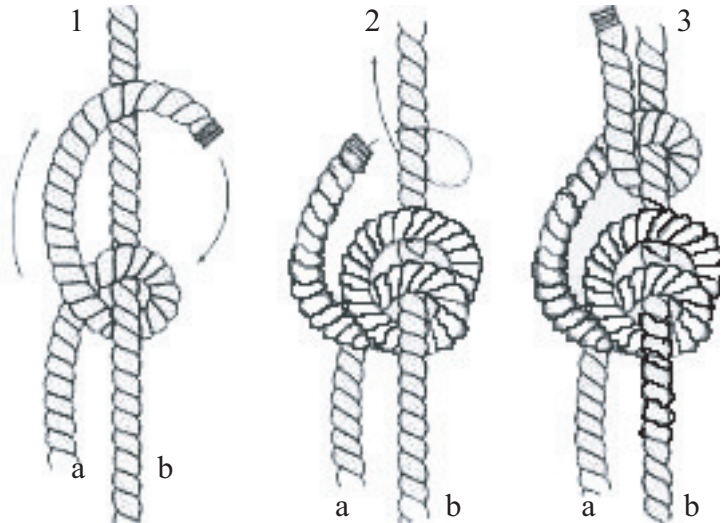
THE ROLLING HITCH (Or the Midshipman's Hitch)

An amazingly useful hitch that no-one ever seems to teach, for some reason! I've used it on boat covers, setting up a fence post, guying a sapling, tying a load to the top of my car after over-indulging at the flea market, and making a temporary suspension line for artwork... It's chief charm is that you can adjust the hitch while under tension!

1: Reeve your line thru the grommet in the tent flap, or thru Granny's ear, or around whatever, then bring the working end (a) back and make an overhand turn around the standing part (b).

2: Now make ANOTHER turn around the standing part and come out **between** (a) and the first turn.

3: Fair up the hitch and then take two half hitches (only one is shown for clarity here) and then pull the rolling hitch down the standing part until the required tension is achieved... move the half hitches down as well and they'll hold the rolling hitch in place.



Myself, I put TWO rolling hitches on the line and THEN use two or three half-hitches, just because I usually wear a belt AND suspenders! This hitch can be adjusted under tension either dry or wet, and I learned of it by using it to keep boats covered on the deck of a large ship crossing the North Atlantic in November.

Works like a dream!

Making Up To The Pier

You can do so with a bowline over a bollard or cleat, a clove-hitch to a piling or a tree, you can do the "round turn and two half-hitches" to a ring as shown below, but whatever you do, be sure you leave enough line out to compensate for the TIDE! I've seen folks tie up at high tide and snub it up tight: The tide goes out, the bow stays tight to the pier or piling, the stern drops with the tide and pretty soon you have an expensive fishing bobber! (*Not good.*) Floating piers eliminate this worry, but, hey, worry anyway. Dinghys are expensive!

Round Turn and Two Half-hitches (a.k.a. "The Fisherman's Bend")

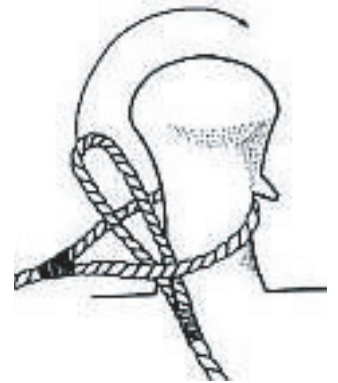
Useful when making up to a pier ring or around a piling, this is one of the "standards" for mooring.

NOTE how the bitter end in (2) goes THRU the two turns on the ring... This keeps the knot from jamming up tight. In manilla line, the single half-hitch shown (3) will suffice, but for synthetics, take one more half-hitch below that. Nylon/Polypropylene lines are slippery creatures... Dinna trust 'em!



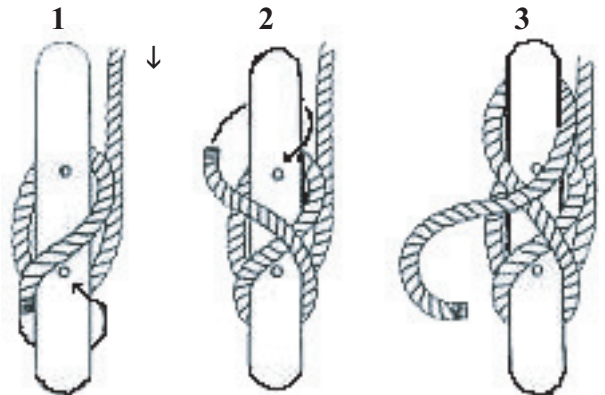
"Dipping" the Eye

There's room for you at the pier, but someone else has his line on the bollard already! "*Don't Worry, Be Happy!*" Simply lead the bight of YOUR eye UP and THRU any others already on the bollard... When you want to cast off, free your line, lift it up and over the bollard and it will drop thru the other lines. I've seen this work with SIX large hawsers on one bollard and, although it took a couple of marlinespikes and two other sailors to help out, once we got the line "unclamped" it lifted up and pulled right out!!



Using The Cleat

Usually, you'll take the line coming from the dock and make it up to a cleat on deck. ALWAYS make up with the line coming to the INBOARD of the cleat. Take your line and lead it under the horn AWAY from the strain, and make a FULL TURN around the cleat (**not shown for clarity in the picture!**) first, then around again and under the horn CLOSEST to the strain, then up and over the cleat as shown in (1). At this point, if the boat is still moving, use the line and cleat to snub off the boat's movement. If the boat is moving too strongly, allow some line to run out, using the friction to slow the movement until it comes to rest. Take out the slack, then make up two "figure 8's" as shown in (2) and (3).



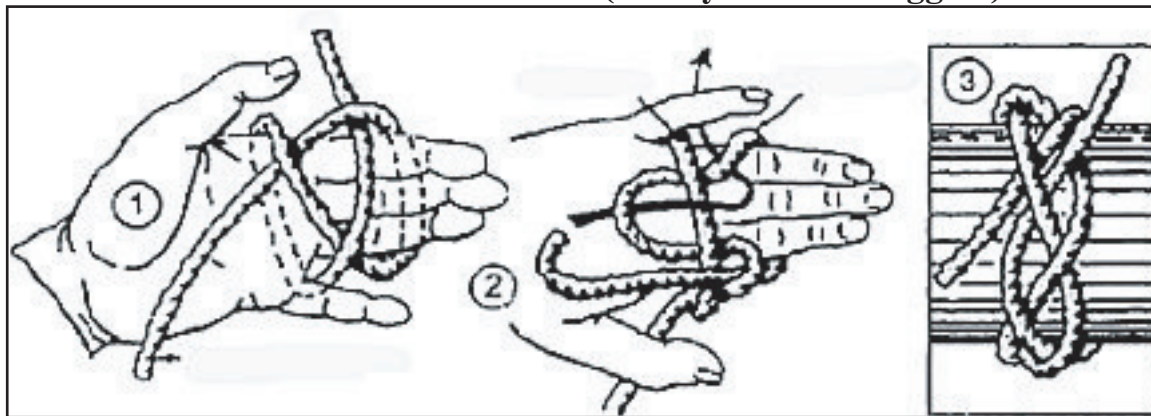
To secure the line, end off with a half-hitch around a horn and then coil or flake any excess. NEVER "make up" solidly to a cleat **before** the boat has come to a complete rest, or you may be replacing a fair portion of decking as a result!

TIPS: NEVER stow a wet line, especially a natural fibre line! It will promote rot and mildew and render the line useless in short order. Always allow line to dry as thoroughly as possible before stowing. If you MUST strike the line below, then get it on deck as soon as practicable to dry it.

Dr. Charles Hamel (Le Nautille) of France has some wonderful pictures of mooring lines:
http://charles.hamel.free.fr/knots-and-cordages/knots_harbours_boats.html

Three styles of Turk's Head

The Three-Strand Turkshead (or Boy-Scout "Woggle")...



Take the working end up and over, then straight down, bring it back up across the palm and over and down as shown, then tuck the working end thru the loop as shown. Next, rotate your hand and take the loop going across

your finger joints and pull it thru the loop across your knuckles: now tuck the working end under that loop and then thru the next loop as shown. Voila! The basic turkshead is tied! Now, follow the standing part thru the turkshead as shown, always staying to the same side of the previous line. Do this until you have three passes made, then tighten up slowly and you have the three-strand turkshead.

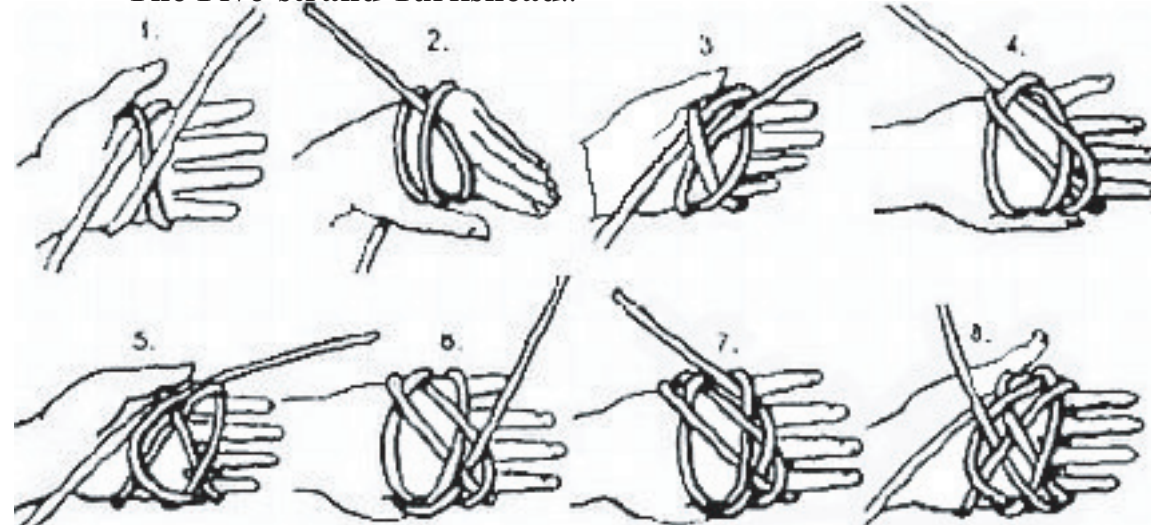
The Four-Strand Turkshead...



(1) Where the three-strand and the five-strand start with round turns, the four-strand starts with a clove hitch... (2) Take the working end up and over your

first knuckle, then clamp that with your thumb and pass the line under the first turn as shown... (3) Bring the line down and around the heel of the palm, then up and under the loop as shown... (4) Now take the working end down and thru the loop as shown and (5) Begin to follow the standing part again as you did in the three-strand, making three passes in total. Tighten up slowly and you've got a four-strand turkshead!

The Five-strand Turkshead..



By now, you've seen that there IS no mystery to tying these things... Simply follow the pictures one step at a time and you come out with the desired result!

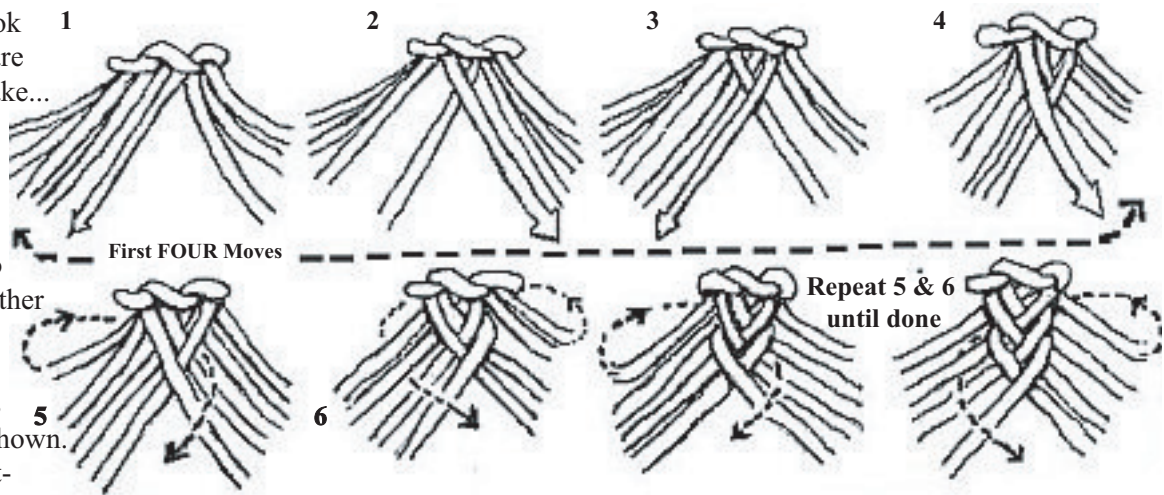
The ONLY real tip you need from here on for ANY turkshead is to is to remember NOT to tighten things up on your hand as you're building it! You need

the slack shown in the photos to be able to make the passes and then "triple up" the leads for a proper appearance. Also, don't be discouraged if you "miss a tuck"... I still do this all the time and you just pull out to the error point and start again from there. Once mastered, you can produce some very pretty ornaments on any quasi-cylindrical object. If you run into problems, simply email me at frayedknotarts@gmail.com!

The "Square" or Steam Gasket Sennit

After a drawing by Ron Edwards in his book, : "Knots, Useful And Ornamental".

The diagramme may look intimidating, but there are few sennits easier to make... Starting is usually the only problem, and this is solved here!



1) Arrange your lines so that you have four on either side. Take the closest-to-the-center from the **RIGHT** group and cross it over to the **LEFT** as shown.

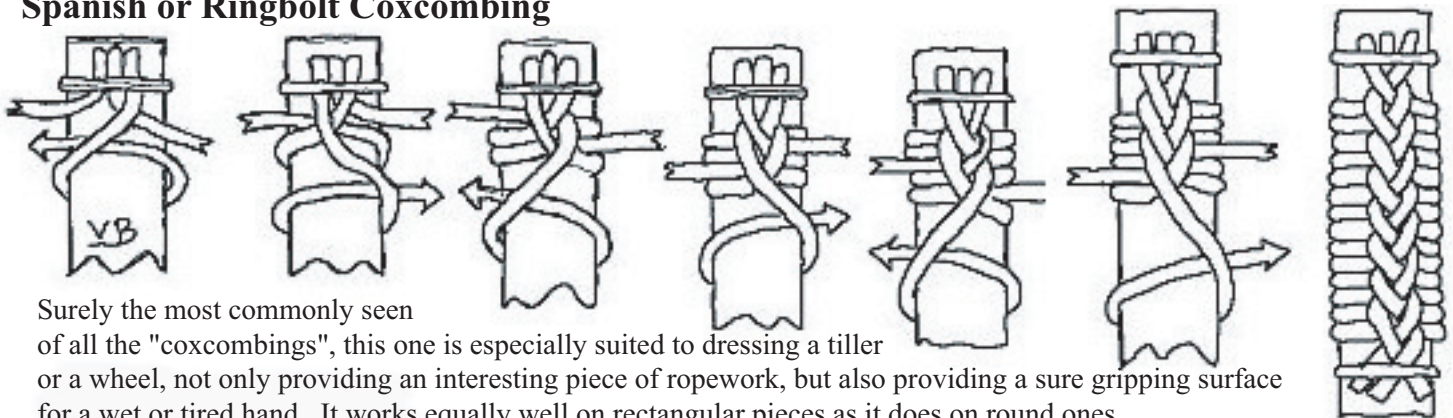
2) Now take the closest-to-the-center on the **LEFT** and cross it **OVER** the first line, going to the **RIGHT** as shown. 3) Repeat the first step using the **NEXT** closest-to-the center on the **RIGHT** and cross **OVER** the previous two to the **LEFT**. 4) Finally, take the closest-to-the center on the **LEFT** and cross **OVER** all to the **RIGHT**.

Now the pattern changes to the one you will use for the rest of the sennit.

5) Take the **FURTHEST**-from-the-center on the **LEFT** and bring it around the back and **between** two pair of lines as shown, crossing **back** to the **LEFT**. 6) Do the same thing on the **RIGHT** side, bringing the line around and between two pair as shown, back to the **RIGHT**. Repeat 5) and 6) until you have your desired length... Once you have reached your length, do **eight more** passes and then put a constrictor hitch around the sennit at the point you **wanted** to stop: This produces a solid braid from start to finish with no voids or "holidays" in it.

There are several ways to end off the sennit. Since I'm assuming you're doing this for a lanyard, you'll need a loop at both top and bottom to attach a knife and to loop around your belt... To make an easily used loop, DO visit my web pages at www.frayedknotarts.com/tutor1.html and look for the particular item you want to learn. "Ending Off" of lanyards and sennits will be listed as such towards the bottom of the page.

Spanish or Ringbolt Coxcombing



Surely the most commonly seen of all the "coxcombs", this one is especially suited to dressing a tiller or a wheel, not only providing an interesting piece of ropework, but also providing a sure gripping surface for a wet or tired hand. It works equally well on rectangular pieces as it does on round ones.

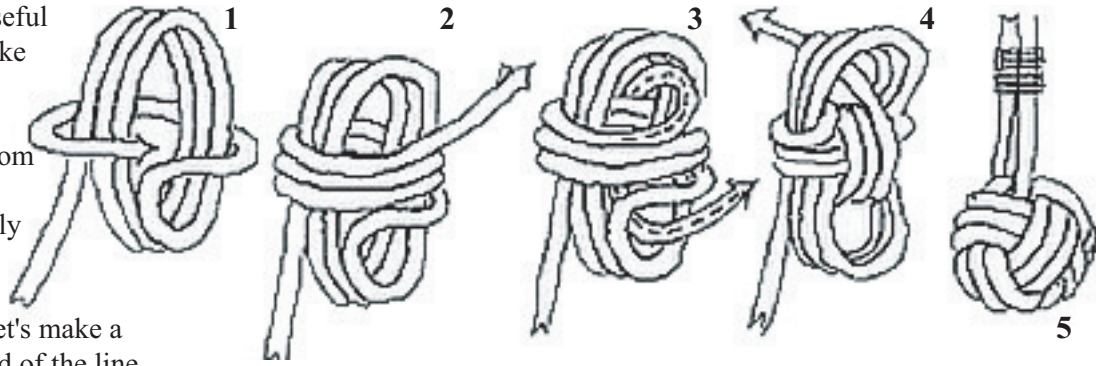
Start with three lines stroped to the work, then take the outboard line as shown and do a half-hitch **ACROSS** the work, take the other **OUTBOARD** line and make a half-hitch across the first and out the opposite direction, then take the third line and make a half-hitch **ACROSS** the first two and out the same direction as #1. Continue making half-hitches using the top line and going **ACROSS** the other two, then out as shown. Fair each hitch as you go, trying for the same amount of tension for each hitch. This becomes "second nature" after a few passes.

This hitching has a tendency to drift a bit to your "strong hand" side, so every few hitches take the time to "straighten" the coxcomb up... after four or so hitches it becomes very difficult to move them, so do this every third hitch. Once you've done enough to cover the area, strop off the bottom and trim everything up neatly.

Finish the coxcomb off with a turk's head covering the strops at either end and you'll have a very nice looking tiller or wheel that will be easily gripped in a following sea or in a storm.

The Monkey's Fist and Heaving Line

Finally, one of the more useful things you can learn to make and use... the heaving line will allow you to pass a line from boat to shore, from boat to boat or from shore to boat easily and efficiently AND you'll look like "The Old Sailor" if you learn to use it correctly! First, let's make a "Monkey's Fist" for the end of the line.



I like to use 1/4" cotton "sash cord" for a heaving line... it's soft, cheap, coils easily and is light, so that it "travels" well when thrown, BUT: It does NOT float! If you want a floating line, try some 3/16" yellow polypropylene line from any marina, but note that this is a very stiff line and not easily used for heaving purposes.

Allow about 12' of line to do this knot, so you'll want about 115' of line total. As shown above, make a set of three turns (use your fingers as a mandrel) (1), then take three turns AROUND the first set (2), then make three turns THRU the first set and AROUND the second set (3) and (4). If you want to keep it round, a little 1" dia. rubber ball from your local dollar store should suffice nicely... put it inside before you start the third set of turns. Now start taking the slack out of the knot from the WORKING end and just go around once to get the major slack out, then go around again to tighten and fair up the knot. Finally, seize off the short end (5) and trim up to be neat. At the other end of the heaving line, I usually make a 2-3" loop and seize the end off neatly. This will allow you to hang the coil from a hook or attach another line easily if needed.

Throwing the heaving line takes a bit of practise to get right and there are innumerable ways to do it, but I favor this:

1. **Make the coil:** If you are going to pass a heavy dock line, attach the heaving line to the eye of the docking line. Make your coil NEATLY: there should be no over-riding turns so that the thrown coil will pay out smoothly.
2. **Break the coil:** Hold the coil in your non-dominant hand. Pick up one third to one half of the coil with your dominant hand. Keep the monkey-fist on the outside of the coil to insure that it pays out without knots.
3. **Turn and sight:** Turn so that your non-dominant shoulder faces the objective. Sight over your shoulder and focus your concentration on a point just above and upwind of the dock, boat, or person.
4. **Swing the line:** Hold your non-dominant hand with the palm up and open. This will allow the heaving line to feed out of that hand. Swing the coil in the dominant hand down by your side in a forward-aft motion. This will put velocity into the line as you throw it.
5. **Heave the line:** Throw the line underhand to a close target where you need pin-point accuracy. When heaving to a boat, use a side arm or overhead throw to gain height and increase the distance of the toss. Always allow for wind direction and force! If you are throwing to a person, try to throw it so the monkey's fist will land upwind and a few feet away from them, several feet beyond their position.

PRACTISE ***** PRACTICE ***** DO IT AGAIN

NEVER use a stone or lead weight in a monkey's fist! If you already have a "weighted" fist, then **PAINT IT RED!** The red alerts all that the fist is weighted so they can get out of the way. Old sailors I have known would calmly take the "Red Head" on a heaving line, cut it off and drop it into the water in full sight of the heaver. In most circles use of a redhead is considered as poor seamanship and a good cause for a donnybrook at the pub!